

WHAT IS CLAIMED IS:

1. A vehicle weight estimating device comprising;

an acceleration detecting means for detecting an acceleration of a vehicle;

a driving force estimating means for estimating a driving force of the vehicle;

a filtered acceleration obtaining means for obtaining a filtered acceleration by eliminating a low frequency component from the detected acceleration;

a filtered driving force obtaining means for obtaining a filtered driving force by eliminating a low frequency component from the estimated driving force;

an acceleration integrating means for obtaining an acceleration integration by integrating a value corresponding to an absolute value of the filtered acceleration during a predetermined period;

a driving force integrating means for obtaining a driving force integration by integrating a value corresponding to an absolute value of the filtered driving force during the predetermined period;

a vehicle weight estimating means for estimating the vehicle weight based on the acceleration integration and the driving force integration;

a vehicle weight averaging means for inputting the estimated vehicle weight and an estimating number of the vehicle weight and averaging the estimated vehicle weight;

a limiter determining means for setting an limiter initial value, providing an upper limiter and a lower limiter passing the limiter initial value, and setting an initial area framed by the limiter initial value, the upper limiter and the lower limiter, and

a vehicle weight correcting means for correcting the vehicle weight averaged based on the initial area during an initial estimation of the vehicle weight.

2. A vehicle weight estimating device according to claim 1, wherein the upper limiter is set based on the limiter initial value and a vehicle weight maximum value to which the vehicle can be loaded, and the lower limiter is set based on the limiter initial value and a vehicle weight minimum value to which the vehicle can be unloaded.
3. A vehicle weight estimating device according to claim 1, wherein the averaged vehicle weight is corrected by the upper limiter or the lower limiter when the averaged vehicle weight is out of the initial area during the initial estimation.
4. A vehicle weight estimating device according to claim 1, wherein the correction of the averaged vehicle weight based on the initial area is canceled after the estimating number becomes a predetermined estimating number.
5. A vehicle weight estimating device according to claim 1, wherein the initial estimation is executed within a period from the beginning of the vehicle weight estimation until the estimating number becomes the predetermined estimating number.
6. A vehicle weight estimating device according to claim 1, wherein the averaged vehicle weight is corrected so as to get in the initial area.

7. A vehicle weight estimating device according to claim 1, wherein the initial value is set based on a vehicle weight maximum value and a vehicle weight minimum value.

8. A vehicle weight estimating device according to claim 1, wherein the initial value is set between a vehicle weight intermediate value, which is between a vehicle weight maximum value, and a vehicle weight minimum value and the vehicle weight minimum value.

9. A vehicle weight estimating device according to claim 7, wherein the vehicle weight maximum value is a vehicle weight of the vehicle being maximum loading, the vehicle weight minimum value is a vehicle weight of the vehicle being empty.